UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/771,451	02/05/2004	Shinichi Miyazaki	N0029.1650	3851

32172 7590 05/26/2005

DICKSTEIN SHAPIRO MORIN & OSHINSKY LLP
1177 AVENUE OF THE AMERICAS (6TH AVENUE)
41 ST FL.
NEW YORK, NY 10036-2714

EXAMINER	
GURLEY, LYNNE ANN	
ART UNIT	PAPER NUMBER
2812	

DATE MAILED: 05/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/771,451	MIYAZAKI ET AL.	
	Examiner	Art Unit	
	Lynne A. Gurley	2812	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 March 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18* is/are pending in the application.

4a) Of the above claim(s) *8-18* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *05 February 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Lynne A. Gurley

LYNNE A. GURLEY
PRIMARY PATENT EXAMINER
TC 2800, AU 2812

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *2/5/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of claims 1-7 in the reply filed on 3/16/05 is acknowledged. The traversal is on the ground(s) that claims 1-7 are generic to the non-elected species in claims 8-12. This is found persuasive. Upon further consideration of the claims and Applicant's remarks, the Examiner agrees that claims 1-7 are generic.

The requirement is still deemed proper and is therefore made FINAL.

2. Claims 8-12 have been withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected species, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 3/16/05.

Priority

3. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

4. The information disclosure statement filed 3/16/05 fails to comply with 37 CFR 1.98(a)(3) because it does not include a concise explanation of the relevance, as it is presently understood by the individual designated in 37 CFR 1.56(c) most knowledgeable about the content of the information, of each patent listed that is not in the English language. It has been placed in the application file, but the information referred to therein has not been considered.

Specification

5. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 1-2, 5 and 7 are rejected under 35 U.S.C. 102(e) as being anticipated by Yoon et al. (US 6,518,165, dated 2/11/03, filed 7/27/99).

Yoon shows the method as claimed in figures 1-8 and corresponding text, with emphasis on figure 2, as forming a resist post 204 (column 4, lines 41-55) on a connection pad 202 of a semiconductor chip 101/201 (column 4, lines 28-40); forming an insulating layer 206 (fig. 2c;

column 5, lines 4-8) that covers the semiconductor chip and the resist post; removing the resist post to form a through hole in the insulating layer, the through hole thereby exposing the connection pad; and forming a wiring layer 102 (fig. 2d-2e) that is in electrical contact with the connection pad via the through hole and is elongated over the insulating layer (claim 1). The wiring layer is formed by plating (claim 2; column 5, lines 24-40). The resist post has a shape whose horizontal cross sectional area becomes larger from a bottom surface of the resist post contacting the connection pad toward the other surface of the resist post that is on the side opposite to the bottom surface (claim 5; fig. 2c). The process further comprises forming a groove in a front surface of the insulating layer, after exposing the surface of the resist post, wherein the groove is connecting to the through hole, and a part of the wiring layer is embedded in the groove (claim 7; fig. 2c-2e; grooves in 206 with wiring layer 102).

7. Claim 1 is rejected under 35 U.S.C. 102(e) as being anticipated by Brenner (US 2005/0020046, dated 1/278/05, filed 7/15/02).

Brenner shows the method as claimed in figures 1-5, as claimed with resist post 21 (fig. 1, [0014]) on pad 22, chip 23 [0002]-[0003], insulating layer 31, exposure of post (fig. 3), removal of post (fig. 4) and wiring layer 61 (also in via hole although not shown in fig. 5. Also see Brenner US 2003/0186536 [0022]-[0023] for more detail on the interconnect).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

10. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

11. Claims 3-4 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoon (US 6,518,165, dated 2/11/03) in view of Malladi (US 6,351,389, dated 2/26/02).

Yoon shows the method substantially as claimed, and as described in the preceding paragraph.

Yoon lacks anticipation only in not teaching the circuit board, support member and surface area (aspect ratio).

Malladi teaches an improved method of packaging a device, which uses similar devices as those shown in Yoon, using a circuit board for application to computer related devices, and a support member for thermal expansion protection.

It would have been obvious to one of ordinary skill in the art to have connected a circuit board and to have connected a support member to the chip, with the motivation that the devices being manufactured in the process of Yoon would be applicable to a computer or a similar device using a circuit board and/or a support member for packaging purposes.

It would have also been obvious to one of ordinary skill in the art to have had the value found by dividing the depth of the through hole by a reduced radius for a surface that is parallel to an opening surface of the through hole and that has a maximum surface area be equal to or greater than 1, in the process of Yoon, with the motivation that these are parameters of optimization which, depending upon the size and scale of the chip would be reasonable to one of ordinary skill in the art.

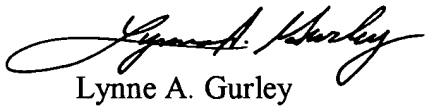
Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See the PTO form 892.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lynne A. Gurley whose telephone number is 571-272-1670. The examiner can normally be reached on M-F 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Lebentritt can be reached on 571-272-1873. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Lynne A. Gurley
Primary Patent Examiner
TC 2800, Art Unit 2812

LAG
May 23, 2005